

Amendment under 37 C.F.R. §1.114
Application No. 10/720,097
Attorney Docket No. 032132

REMARKS

Claims 1-21 are pending in the present application. Claim 21 is withdrawn from consideration. Claims 1-20 are rejected. Claims 1 and 20 have been amended to incorporate the subject matter of canceled claims 6, 8 and 9. New claim 22 has been added, based on page 28, lines 15 to 17 of the original specification. No new matter has been presented.

Claims 6, 8 and 9 are herein canceled.

Claim Rejections - 35 U.S.C. §103(a)

Claims 1-20 remain rejected under 35 U.S.C. §103(a) as being unpatentable over EP1152036 to Kanda et al. in view of U.S. Patent No. 5,173,393 to Sezi et al. Claim 20 remains rejected under 35 U.S.C. §103(a) as being unpatentable over Kanda et al. in view of Sezi et al.

The Examiner characterizes Applicants' argument as asserting that there is no teaching that the etch treatment of Sezi et al. is useful for increasing etch resistance to any other etching medium besides halogen-containing etching plasma. The Examiner clarifies her position that Kanda teaches the formation of a resist pattern, while Sezi et al. is depended upon to disclose placing surfactant on an already-formed resist pattern.

Applicants submit that they were not differentiating based on the treatment of Kanda et al. not being useful for increasing the etch resistance to any other etching medium besides halogen-containing plasma. Rather, Applicants were asserting the above to submit that one

skilled in the art would not combine the process of Kanda et al. with the process and dissimilar material of Sezi et al.

The Examiner asserts that Applicants' argument that Sezi et al.'s treatment composition is unsuitable for the photoresist resin of Kanda et al. is unpersuasive. The Examiner asserts that the cited portion of Sezi et al., i.e., col. 2, lines 2-7, does not disclose or teach that the novolak resist cannot be subjected to the treatment composition of Sezi et al. Rather, column 2, lines 2-7 of Sezi et al. merely disclose the absorption of novolak resist in DUV wavelengths, and not the claimed surfactant composition treatment. The Examiner notes that the absorption in DUV wavelengths is not the determining factor for a post development surfactant treatment process performed on an already-formed resist pattern.

Applicants herein amend the claims by importing limitations from claims 6, 8 and 9 into claim 1. Subsequently, Applicants again disagree with the rejection.

Applicants first note that the Examiner points to Sezi et al. as teaching the placing of surfactant on an already-formed resist pattern. The Examiner points to column 6, lines 60-68 and column 8, lines 8-11. However, the cited portions of the reference merely disclose the possible rinsing of the resist pattern with alcohol or the like, and further wherein the alcohol is isopropyl alcohol. We understand that isopropyl alcohol is not a nonionic surfactant, in fact, it is not a surfactant at all. If our understanding is correct, then the claimed limitation of applying a first surfactant to a resist pattern is not taught by the cited references, even if they were properly combined.

However, Applicants do not believe that one skilled in the art would have used the cited solution of Sezi et al. on the resist pattern of the present invention in order to produce a photoresist having increased etch resistance. Applicants identify two alternative reasons why one skilled in the art may not have combined the treatment of Sezi et al. with the process of Kanda et al.

Applicants submit that the cited solution of Sezi et al. is described as increasing the resistance of the treated photoresist layer to etching to a single etchant: halogen-containing etching plasma (abstract; column 1, line 19; column 1, line 43; column 3, line 36; column 4, line 42; column 6, line 38; column 6, line 56; column 7, line 6; column 8, line 56). There is no teaching that this treatment of Sezi et al. is useful for increasing etch resistance to any other etching medium besides halogen-containing etching plasma. Furthermore, there is no other reason proffered to use such a treatment. Since there is no subsequent halogen-containing etching plasma in Kanda et al., there would be no reason for one skilled in the art to have combined the resist pattern treatment of Sezi et al. with the resist pattern of Kanda et al.

Applicants note that if a proposed modification of a reference would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. Manual of Patent Examining Procedure (MPEP) §2143.01(V). Applicants further again note that the photoresist of Kanda et al. is described as typically a novolak resin (paragraph [0021]). However, the photoresist of Sezi et al. describes that *novolak resins are unsuitable* for its purposes (column 2, lines 2-7). Thus, the treatment

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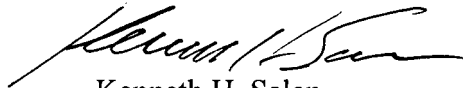
composition of Sezi et al. appears to be unsuitable for the photoresist resin of Kanda et al. Such set of facts presents a situation wherein the asserted proposed modification of a reference would render the prior art invention being modified unsatisfactory for its intended purpose. Therefore, there is no suggestion or motivation to make the proposed modification

For the above reasons, Applicants assert that one skilled in the art would not combine the treatment of Sezi et al. with the process of Kanda et al.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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